IN THE ABSTRACT:

Delete the abstract now of record and insert therefor the new abstract submitted herewith on a separate sheet.

REMARKS

In order to place this application in condition for a complete action on the merits, the specification has been suitably revised to correct informalities and to place it in better conformance with U.S. practice. Claims 1-9 have been amended in formal respects to improve the wording and bring them into better conformance with U.S. practice. Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached pages are captioned "**VERSION WITH MARKINGS TO SHOWN CHANGES MADE**." To obtain a fuller scope of coverage, new claims 10-16 have been added. Adequate support for the subject matter recited in these claims may be found in the specification as originally filed.

Early and favorable action on the merits are respectfully requested.

Respectfully submitted,

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MAILING CERTIFICATE

I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Commissioner of Patents & Trademarks, Washington, D.C. 20231, on the date indicated below.

Bruce L. Adams
Attorney Name

Signature

JANUARY 13, 2003
Date

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Paragraph beginning at line 13 of page 1 has been amended as follows:

Large capacity and small scale have been requisite for information recording/reproduction apparatuses using light and to achieve this object, higher density of a recording capacity has been necessary. Though [researches that use] research using a blue-violet semiconductor laser have been conducted [made], these technologies can improve only several times the recording density of the present level due to the problem of the diffraction limit of light. In contrast, an information recording/reproduction method utilizing near field light would be a promising method as a technology that handles optical information of a minute region exceeding the diffraction limit of the light.

Paragraph beginning at line 11 of page 7 has been amended as follows:

The substantially rod-like optical guide having flexibility generally has a thickness of not greater than about 100 μm, and it is difficult to attain a high NA for increasing the energy density of the luminous flux incident

into the minute aperture. It would be possible to attain a high [a] NA of the luminous flux incident into the minute aperture by increasing the distance between the core having the reflection surface formed thereon and the ball lens, but when such an arrangement is employed, the optical waveguide loses its flexibility. In addition, since the optical pickup becomes thicker and the position of the center of gravity becomes higher, high-speed tracking becomes difficult to execute.

Paragraph beginning at line 6 of page 12 has been amended as follows:

Further, according to a fifth aspect of the invention, a fifth information recording/reproduction apparatus according to the present invention has its feature in that the optical waveguide further includes a flexure[, too].

Paragraph beginning at line 19 of page 16 has been amended as follows:

The near field [lens] head 104 includes a micro-lens 205 formed on a transparent glass substrate, for example, so as to accomplish a lens function for [a] the head, and an air bearing surface 204 formed on the side of the recording medium

so that the head 104 can always float while keeping a predetermined relative arrangement. A shading film (not shown) covers the surfaces of the head 104 other than the surface on which the micro-lens 205 is formed. A minute aperture 206 is formed in the shading film on the bottom surface of the near field optical head 104. The micro-lens 205 condenses the luminous flux from the optical waveguide 103 to the minute aperture 206. The waveguide 103 comprising the core 201 and the clad 202 is fixed to the upper part of this near field optical head 104.

Paragraph beginning at line 10 of page 19 has been amended as follows:

In this embodiment, the distance from the core end face to the micro-lens 205 can be set to about 1 mm, for example. Assuming that the expansion angle of the luminous flux outgoing from the core 201 on the core end face is NA = 0.1, the micro-lens 205 expands the luminous flux to a radius of about 100 μm. When the thickness of the near field optical head [105] <u>104</u> is 400 μm and the refractive index of glass forming the near field optical head is 1.7, the NA of the luminous flux incident into the minute aperture 206 is at least 0.4. Consequently, the luminous flux is condensed to the minute aperture 206, the energy density becomes high and